

NORTHERN TERRITORY NATURALIST



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THE NORTHERN TERRITORY FIELD NATURALISTS CLUB
FOUNDED 1977

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The objects of this club are to promote the study of and interest in the flora and fauna of the Northern Territory and in its conservation. The club provides opportunities for discussion and dissemination of information among its members by regular meetings, publications and fieldwork. It works in close contact with scientific institutions wherever possible, and encourages the publication of scientific and informed popular literature in the various fields of natural history.

N.T.F.N.C. Subscription Rates: \$5.00 (under review)

All members receive the regular newsletter Nature Territory and the bi-annual N.T. NATURALIST. The price of the journal to non-members is currently \$1.00. The club holds monthly general meetings and field excursions.

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EDITORIAL

It is an exciting, yet demanding task to produce the first edition of a magazine such as this one. Contributions have reached the Editor's desk more as a trickle than as a flood. Many potential authors have waited for this edition to appear before committing pen to paper. It must be emphasized that contributions are welcome from all naturalists, both amateur and professional, junior and senior. It is firm editorial policy that the magazine be as readable as possible in order to reach a wide cross section of the community, both here and interstate.

1978 sees two thriving Field Naturalists Clubs in the Northern Territory, in Darwin and Alice Springs. Both were established in 1977 and are going from strength to strength. It is encouraging to note the emphasis that the Alice Springs group is placing on Junior Membership. However, it is with some regret although probably unavoidable in the circumstances, that this issue contains all Darwin based material. The magazine will only be as representative as its contributions, and looks forward to receiving copy from other Territory centres for its next issue.

Perhaps the two Clubs could also consider a structural change for the future, whereby both became autonomous branches of a true N.T. Field Naturalists Club. This would pave the way for other Clubs to form (e.g. Arnhem, Tennant Creek, Gove, etc.) The N.T. club could be administered by several senior officers of the Branch clubs. The Editor of the N.T. Naturalist and the editorial committee would be appointed by, and be responsible to, the N.T. club. The magazine itself could be funded by a levy, based on membership, from each branch club. This form of organisation would not hinder the activities of the Branch clubs in any way, but would facilitate a higher quality, more widely appealing journal through increased funding.

Finally, intending authors should post their contributions for the next issue to arrive by July 31.



LETTERS TO THE EDITOR



Dear Sir,

At approximately two thirty on a hot, humid afternoon in October 1975, I was with a group of picknickers at a location on the Adelaide River known as the 'Gravel Pit'. The area is a sandy/gravel river bed with Wattles, Paperbarks, Bamboo, Northern Ti-Tree, Barringtonia, Bush-apples, Leichardt pines, Banyans, native Jasmine and sparse undergrowth merging into open Eucalypt forest with occasional *E. papuana*.

The permanent water of the Adelaide River makes an ideal habitat for at least fifty species of birds, numerous reptiles, native cats and numerous Agile Wallabies.

A rustling sound caught the attention of another person and myself. Under a huge bamboo thicket we saw a strange little animal scratching through the leaf debris, apparently looking for food. It had a pointed snout, fairly prominent ears, thinnish legs with visible claws, and a feathery tail held vertically in almost the shape of a question mark. Colouration was difficult to observe due to the dense shade. It had an unusual mincing, almost bouncing, gait.

Our exclamation of surprise frightened the animal. It vanished almost magically into the bamboo thicket. A close scrutiny of the area failed to find any trace of footprints.

In August 1977, a further sighting of a similar animal was made several kilometres from the 'Gravel Pit'. It was at 6.00 p.m. opposite Gubb's Farm.

In my opinion, the animal resembles a numbat [*Myrmecobius fasciatus*]. The other witness agrees.

I have since read many articles on numbats and have received some excellent information from Mr. John Humphreys, Forests Department, Narrogin, W.A., who is in charge of the Dryandra State Forest, which is the only known stronghold of numbats in Australia. The Wandoo tree is the singularly most important tree in the Dryandra Forest for numbat habitation. It is prone to termite infestation which causes branches to be deposited on the forest floor, which in turn, become refuges for the numbats. A similar tree at the 'Gravel Pit' is *E. miniata*, or Darwin Woollybutt.

On December 17, 1977, a field trip to the 'Gravel Pit' by the N.T. Field Naturalists Club failed to find any sign of the animal, however, the searchers found heavy termite infestation in fallen trees, branches and logs over the entire area.

Being an extremely shy and agile diurnal animal, never venturing far from refuge, it is logical to assume that it has evaded discovery by taking for cover at the approach of man and machine. The 'Gravel Pit' is an extremely isolated area being rarely visited by Mt. Bunday personnel and a few privileged visitors.

Areas adjacent to the Adelaide River levee are cleared for pasture improvement programs. These animals may therefore have survived the disturbance to their habitat by re-establishing themselves in the relatively narrow strips of virgin forest merging into the levees.

Extreme care is taken by graziers in the area with fire control measures, so there is no reason to believe that the existing habitat will be further eroded in the near future, however I believe a thorough search of the area in the near future is warranted. Mr. Humphreys has outlined a search method used in the Dryandra Forest which may be of great assistance to the N.T. Field Naturalists Club.

Yours faithfully,

Chris Cox

EDITOR'S NOTE: The Numbat has a well-known distribution from southern Western Australia to North-western South Australia. Being diurnal makes it all the more likely that if it existed here, it would have been seen before and collected. Sightings such as this require collection of a specimen for museum examination before they can be verified.

Sir,

On the morning of the 4th of August 1977, John Estbergs and myself were sitting on the dam wall at Fogg Dam watching Banded Landrails [*Rallus philippensis*] at the edge of a large area of tall sedge [*Sclera* sp.] growing in a water-logged black soil plain. At the edge of this large clump of sedge were four smaller clumps only a few feet in diameter and about twenty feet from the main expanse.

While watching the Banded Landrails, I noticed a small, dark crane emerging from the edge for a moment and then ran very rapidly across the open area to one of the smaller clumps. I immediately

informed John and as we carefully scanned the clump with binoculars, the crane slowly came out to the edge, where it stood motionless for a few moments. Suddenly it turned, running very rapidly back to the main sedge area. As it ran back, the tail was held in an erect position, and distinctive white barring was noticed on the underside of the tail. The head, breast and belly all were a dark bluish grey colour, while the wings were brownish black. The legs were also dark, possibly covered in mud, as were the legs of the Banded Landrails. After the observations were made, we walked back to our vehicle, and on checking through the field guides, we confirmed our identification of the Spotless Crane.

All observations were made with the aid of 8x binoculars at a distance of not more than thirty feet. The weather was fine and sunny and both observers have had experience with this species before. On the next visit to the area (25th August 1977), I was again fortunate to observe a similar bird as it moved across the track made through the sedge by buffalo. Unfortunately, this was a very brief glimpse and of little identification value, except to identify it as a crane.

As far as it is known, this is the first record of the Spotless Crane in the top end of the Northern Territory.

Tony Hertog,
P.O. Box 38595,
WINNELLIE, N.T. 5789.

Editor's Note:

This bird has been previously recorded in all Australian States except the Northern Territory, including the S.E. Gulf of Carpentaria region in Queensland. Its distribution is not well understood, probably because of its secretive habits. The recorded race in Australia is *Porzana tabuensis plumbea*, but other races occur in the islands north of this continent, from the Philippines through to the S.W. Pacific. Note that the Marsh Crane, *Porzana pusilla*, found in the Darwin area also has barred undertail coverts. A distinguishing feature of the Spotless Crane is its deep pink legs.

NOTES ON THE GENUS LINGULA

GRAHAM WHITE

Lingula is a very ancient genus belonging to the Pylum Brachiopode. Members of this phylum have the common name "Lamp Shells", as some examples resemble a Roman oil-lamp.

As the Brachiopods were most abundant in the Ordovician and Devonian periods, geologists use their fossils as a means of dating rocks.

Lingula has remained virtually unchanged since the Ordovician period, almost 500 million years ago, and now are uncommon but fairly widespread throughout the world. They are most common in Japanese and Australian waters.

Lingula live in burrows, five to thirty centimetres long in mud and sand at the low tide mark and resemble bivalve molluscs. However, whilst the valves of the bivalve are joined by a hinge, brachiopods hold their valves together solely by muscles.

This animal can be easily distinguished from a bivalve as it has a long, fleshy "arm", extending down into the burrow. This structure allows it to withdraw into the burrow at any sign of danger.

Although this animal probably occurs over much of the Northern Territory coastline in the littoral zone, to date, specimens have only been collected at Melville Bay on the Gove Peninsula and at Camerons Beach, Shoal Bay, near Darwin.

Graham White,
Dept. of Fisheries, Forestry & Wildlife,
Dept. of the N.T.,
BERRIMAH, N.T.

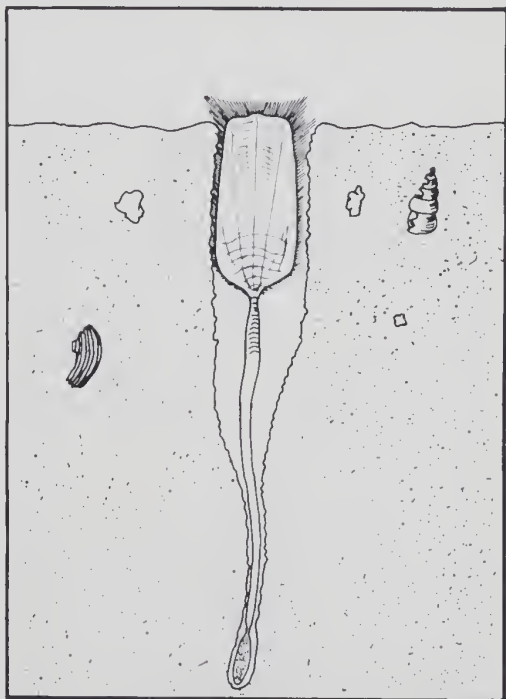


Fig. 1 Lingula — A diagrammatic representation of the lamp shell that occurs on the N.T. coastline, showing in particular the burrow, "arm", and main body of the animal in relation to the sand surface.

SEA WASPS (SCYPHOZOA : CUBOMEDUSAE) IN THE NORTHERN TERRITORY

D. L. Grey

The name 'sea wasp' is generally applied to a group of marine jellyfish responsible for severe and often fatal stings to bathers.

Members of the Class Scyphozoa occur around the Australian coastline and about thirty are recognised as stingers. Of these, the two most dangerous species are members of the Family Chirodropidae, Order Cubomedusae, namely *Chironex fleckeri* (Southcott) and *Chiropsalmus quadrigatus* (Haeckel). In addition, there are several generally smaller tropical species which can inflict very painful stings but are not responsible for fatalities. While both *Chironex* and *Chiropsalmus sp.* are present in waters of Northern Australia, only *Chironex fleckeri* has been confirmed as a killer in the Northern Territory. (Cleland and Southcott 1965).

The Cubomedusae are sometimes called box jellyfish due to their shape (fig. 1). They consist of a roughly cuboid bell of a tough gelatinous consistency which is almost transparent. This bell contains the digestive and reproductive functions as well as motive power. Each corner of the bell has a protruding pedulum branching into as many as twelve tentacles. (Southcott 1956, 1962; Barnes 1965).

The presence of the sea wasps during only six or less months of the year has been attributed primarily to the dietary requirements of the group. During the wet season, coastal waters are enriched by freshwater discharge from the land, carrying large organic loads. As a result of this, phytoplankton proliferates and is in turn grazed by small crustaceans, particularly the Sergestid shrimp *Acetes australis* (Colefax). It appears that *Chironex* in particular is well adapted to feed on this species. (See fig. 2)

On their arrival, many *Chironex* are small specimens (approx. 10-15 mm diam.) with a single tentacle on each corner of the bell. However, they grow rapidly and by February can reach 200 mm diameter with tentacles over 2 metres long. However, in contrast, large specimens have been observed early in the season and this, along with the virtual disappearance of the animals during the dry season, presents a rather confusing glimpse of the life history. Many members of the Class Scyphozoa have a dormant or sessile phase in their life cycle, including *Chironex* (Hartwick pers. comm.) but the details of the dry season whereabouts of this species have yet to be fully explained.

The feeding mechanism of the Cubomedusae is well adapted to its specific needs and it is this mechanism which is responsible for the severe stings. Each tentacle is lined with bands of stinging cells known as cnidoblasts. Within these cells are very efficient organoids or nematocysts (one per cell). These nematocysts are composed of a capsule of highly toxic venom, a barbed, finely coiled tube and a protruding trigger. When the trigger is stimulated by contact with food, it fires or discharges the tube with significant force (at least enough to penetrate the live prey) and the venom is then discharged down the tube. (Details of this action are provided in Southcott, and Cleland and Southcott).

Under natural circumstances, the prey would be a small shrimp or fish larvae and only a small number of nematocysts would be discharged. The extremely toxic venom is capable of stunning the prey, minimizing any struggles that could damage the relatively fragile body of the sea wasp. However, when bathers are stung, a great deal of tentacle contact occurs (see Maguire) and possibly thousands of nematocysts are discharged and inject their venom. Consequently, the severity of the sting depends to a great extent on the amount of tentacle contact, this obviously being less with smaller individuals.

There is some evidence to suggest that nematocysts discharge more readily in diluted sea water as there is a statistical correlation between massive and fatal stings and recent heavy rain. (Barnes 1966).

Most Cubomedusae are particularly sensitive to turbulence and they are generally found close inshore only on calm days. The group are all active swimmers, propulsion being achieved by muscular contractions of the bell expelling water. This swimming action is utilised during feeding — once the prey has been located and paralysed, it is transferred to the gastric region using gravity. The animal merely settles upside down and the tentacles fall within the bell where the food is removed.

The medusa then rises towards the surface and swims. After a short while, all activity is suspended and it gradually sinks until the tentacles encounter food, whereupon it repeats the operation (Barnes 1966).

The clinical effects on humans of the toxin released by *Chironex fleckeri* have been well documented by several authors, including Cleland

and Southcott (1965), Barnes (1976), Maguire (1968), Keen (1970) and Southcott (1974).

Detailed pharmacological studies of the toxin have been carried out by Endean et al (1969), Keen and Crone (1969), Freeman and Turner (1971), and many others. In brief, the effects of the toxin can be summarized into three categories: namely neurotoxic (lethal factor causing cardiac and respiratory arrest), dermatonecrotic (skin death) and haemolytic (destruction of red blood cells).

In the North of Australia, recorded sea wasp deaths easily outnumber those attributed to sharks, sea snakes and other dangerous marine creatures. The nature of the animal renders the chance of physical exclusion from swimming areas minimal. Many proposals for exclusion have been considered, but the safest way to avoid being stung is to avoid swimming in the sea during the wet season. Protective clothing is quite effective provided the trunk is adequately covered and the material thick enough to prevent nematocyst penetration.

Research is being conducted into a variety of treatments for stings. One handicap with anti-venenes designed to be administered after a major

sting, is that some training would be needed for correct administration and the victim may suffer cardiac arrest within 1 to 2 minutes of the attack. The chances of having the anti-venene and a qualified person close enough to be effective are fairly low, particularly in remote areas.

The structure of the active component in the toxin suggests a chemical antidote may be advised which can be administered via inoculation. While such an antidote could probably be prepared, the problems of testing it on humans and the possibility of its low effectiveness against toxins from other species have not been overcome.

First Aid treatment of victims of stings must be immediate, and medical attention is very important. The first concern is to prevent further nematocyst discharge by dehydrating adherent tentacles using methylated spirit or other alcohol. Removal of tentacles by gently peeling them off should be carried out, but on no account should they be rubbed or rolled across the body.

Further information is available from the local health authorities and in the literature cited, including Edmonds (1975?) and Anon (1975).

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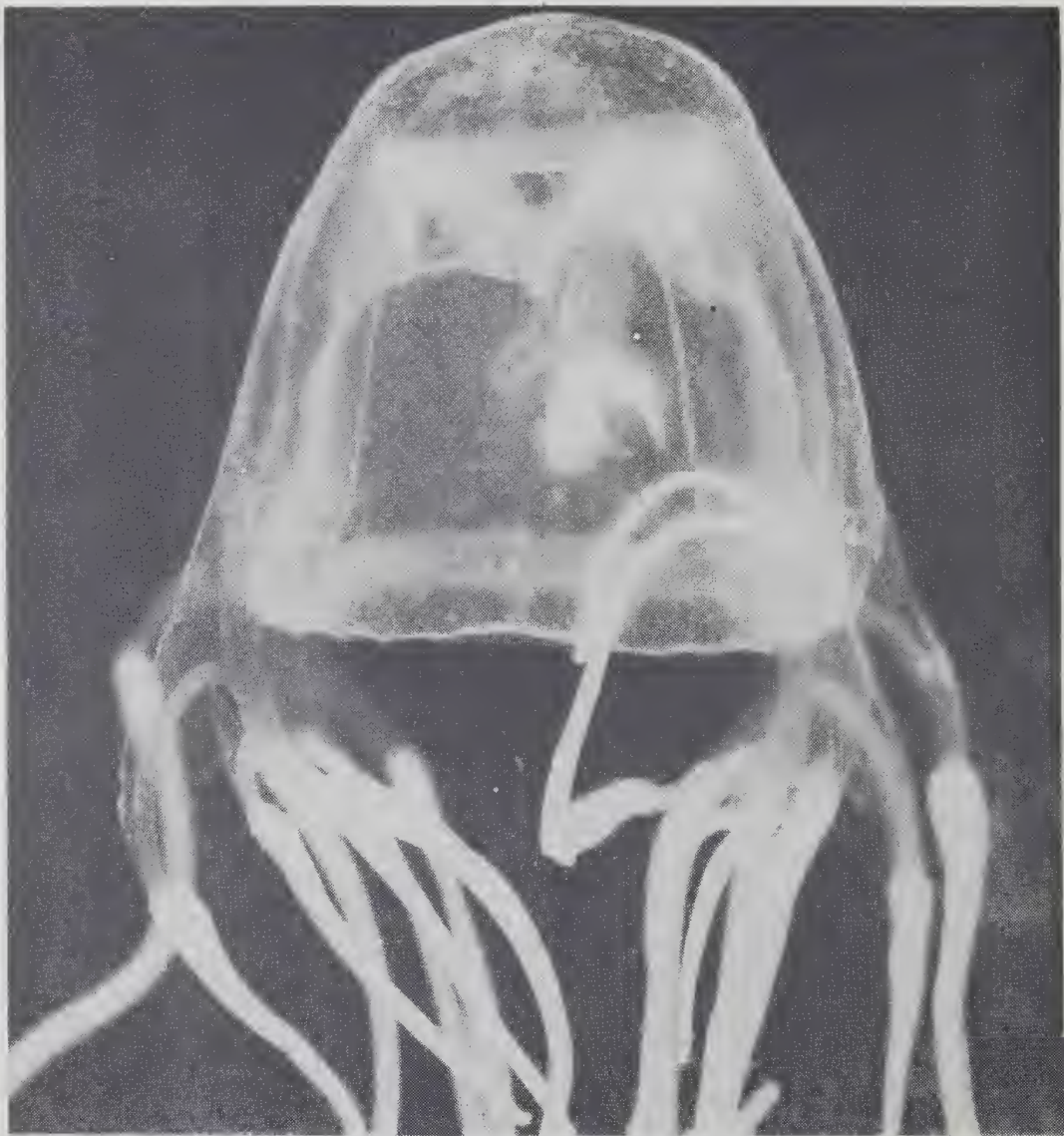


Fig. 2 *Chironex fleckeri* with partly digested *Aceres* sp.

COMMON BIRDS OF THE DARWIN SUBURBS

H.A.F. Thompson

Despite the continuing expansion of the urban area and the damage to woodland caused by Cyclone Tracy in 1974, there is still a large number of bird species to be found regularly in the Darwin area. Since the start of European occupation in 1869, 262 species have been reliably recorded within a twenty kilometre radius of the General Post Office, excluding Cox Peninsula with the west side of the harbour. However, many of these species are occasional or seasonal visitors.

This account covers sixty species occurring regularly in suburban Darwin and are those most likely to be seen by the casual observer. Rare sea-birds, occurring as beach-washed vagrants and the non-breeding but plentiful shore-birds such as waders and terns are omitted. The species included are generally the commonest and those found most closely in association with man; together they provide an introduction to Darwin's bird-life.

The distribution and abundance of Darwin's birds depends largely on trees used as sign-posts, nest-sites, feeding places and refuges. Consequently the variety and number of birds is greater in longer established suburbs such as Nightcliff and Fannie Bay and less in newer developments such as Wulagi and Anula. Nightcliff and Fannie Bay also have relics of the original monsoon-forest that covered the area (for instance, mature banyan trees *Ficus virens*) and attract species like the Torres Strait Pigeon *Ducula spilorrhoa* and the Koel *Eudynamis scolopacea*. Most of the northern suburbs from Alawa, Jingili, Moil and through to the new subdivisions of Wulagi and Anula were formerly clothed in open forest dominated by *Eucalyptus tetradonta* and *E. miniata* and at present support birds characteristic of this habitat such as the Pied Butcherbird *Cracticus nigrogularis*. In some coastal areas, bird diversity may be influenced by mangrove communities from which species like the Red-headed Honeyeater *Myzomela erythrocephala* may overspill into suburban gardens.

As regards the gardens themselves, those with native plants usually attract more species than those with mainly introduced trees and shrubs. Plants such as crotons [*Codiaeum*] may be attractive to the human eye but seem to hold little appeal for small nectar or insect-eating birds. Other factors, such as the presence of cats or the lavish misuse of pesticides will also have their effects.

List of Species

Straw-necked Ibis [*Threskiornis spinicollis*] A large, distinctive species. Mainly a dry season visitor, especially to watered artificial grasslands such as

ovals, golf-courses and suburban lawns and verges. Non-breeding birds lack the straw-coloured plumes and immatures apparently have a brownish head and neck. Apparently dependent to some extent on local abundance of grasshoppers and locusts. (Storr 1977).

Magpie Goose [*Anseranas semipalmata*] Builds up into large flocks at the end of the dry season, often in thousands in the Leanyer swamp area. Small parties sometimes come close to the city near the Botanical Gardens or are seen in flight overhead. Its future in the Darwin area is threatened by urban expansion, uncontrolled shooting and the threatened drainage of Leanyer swamp.

Burdekin Duck [*Tadorna radjah*] This conspicuous black and white duck is most commonly seen close to the built-up area and breeds regularly within the twenty kilometre radius.

Black-shouldered Kite [*Elanus notatus*] An elegant small hawk, visiting suburban fringes, especially where there is rough grassland, in the dry season. Confusion possible with the vagrant Letter-winged Kite [*E. scriptus*] which invaded the Top End during the 1977 dry season.

Brahminy Kite [*Haliastur indus*] A coastal hawk; adult with distinctive chestnut and white plumage. Usually seen in the coastal suburbs, Nightcliff, Rapid Creek, Fannie Bay, and the city and Stuart Park areas. Has recently bred in the city area (P. Rowen, Pers. Comm.). Also occurs in the Gove area.

Whistling Kite [*Haliastur sphenurus*] Common; often found near fresh water and occurring in mixed flocks with the next species. Has bred on the fringes of the suburbs.

Black (Fork-tailed) Kite [*Milvus migrans*] One of the most familiar birds of Darwin, occurring in large and apparently increasing numbers in the dry season, especially around Leanyer dump where flocks of 2000 plus are not uncommon and in the Berrimah area. Widespread over all suburban areas and hawking for insects along highways when grass is burnt-off early in the dry season. Appears to suffer high mortality from accidents, especially on roads, and disease. Leaves Darwin during the wettest months, from about January to April. Also common inland, especially around Katherine. A successful commensal of man, it is widespread in Asia and southern Europe.

Brown Falcon [*Falco berigora*] and Nankeen Kestrel [*Falco cenchroides*] are two species of falcon,



White Bellied Cuckoo Shrike

sometimes visiting suburban fringes, mainly during the dry season.



Whistling Kite

Masked Plover [*Vanellus miles miles*] Quite common around the fringes of Darwin, sometimes heard near water at night or seen feeding near Mindil Beach or the Botanical Gardens. Breeds close to the northern suburbs at the end of the wet season but is apparently not as much at ease with man as its close relative in southern Australia, the Spur-winged Plover [*V.M. novaehollandiae*]

Little Whimbrel [*Numenius minutus*] The traditional herald of the Darwin wet season, usually arriving in the mid-September (not on the same day each year, in spite of the popular myth to the contrary!) and leaving late December or early January. Especially common on well-watered ovals or lawns, at the airport, natural non-saline swamps at Leanyer and Holmes Jungle. The name Whimbrel originates from the call of a related coastal species, simply called whimbrel, [*Numenius phaeopus*] which occurs on the coasts around Darwin.

Australian Pratincole [*Stiltia isabellae*] A regular dry-season visitor in erratic numbers. Most often seen on ovals. Unusually scarce in the 1977 dry season.

Torres Strait Pigeon [*Ducula spilorrhoa*] A large pigeon, apparently a trans-Arafuran migrant, arriving in Darwin from New Guinea from July onwards and breeding where suitable trees are available. Favours large banyans in Nightcliff but occurs in other woodland habitats including mangroves.

Peaceful Dove [*Geopelia striata*] Common dove around the fringes of Darwin in a variety of wooded habitats including mangroves. Occurs sparingly in the suburbs and even the city where cover is plentiful.

Bar-shouldered Dove [*Geopelia humeralis*] Also common on the fringes of the built-up area and in mangroves but seems more wary than the previous species.

Red-tailed Black Cockatoo [*Calyptorhynchus magnificus*] A dry season visitor, which can be very conspicuous in small flocks, often flying over the suburbs in early morning or evening between roosts and feeding-grounds. Only the adult male has the bright red patches on the tail; birds with yellowish patches are adult female or immatures of either sex.

Galah [*Cacatua roseicapilla*] Not especially common around Darwin itself and at present mainly a dry season visitor but there are some signs that it has increased in the suburbs since the cyclone, possibly because thinning out of the trees has created a more suitable habitat. Fairly regular throughout the 1977 dry season in the Lee Point Road area.

White Cockatoo (Sulphur-crest) [*Cacatua galerita*] Fairly frequent visitor to well-wooded suburbs but also on the fringes of the development around Wulagi.

Red-collared Lorikeet [*Trichoglossus haematodus*] The common parrot of suburban Darwin, occurring in most areas but especially where there are mature eucalypts. Numbers erratic, depending on the tree-blossom (Eucalyptus and Melaleuca) that provides the nectar on which they feed. Before cyclone Tracy, there was a large roost in Alawa, numbering several hundred birds.

Red-winged Parrot [*Aprosmictus erythropterus*] Quite common in wooded fringes around Darwin and frequently visits suburbs.

Koel [*Eudynamis scolopacea*] A wet-season visitor, this species is a parasitic cuckoo laying its eggs in the nests of other birds especially friarbirds. More often heard than seen, especially in the evenings, early mornings or at night, from the thick cover of banyans. Has loud "coo-ee" call, often rising in pitch and sounding more hysterical. Seems to be noisiest in November.

Pheasant Coucal [*Centropus phasianinus*] A non-parasitic cuckoo; quite common on the fringes of Darwin where there is rough grassland and edges of woodland, in the Fannie Bay area, around Lee Point Rd. and elsewhere. Apparently scarce in the dry season but very noisy at the beginning of the wet.

Blue-winged Kookaburra [*Dacelo leachii*] Common where there are mature eucalypts, venturing into the suburbs and becoming tame enough to feed from the hand (D. Grey, Pers. Comm.) Very noisy at dawn and dusk. Breeding September to December (Storr, 1977) in holes in old trees.

Sacred Kingfisher [*Halcyon sancta*] The commonest small kingfisher in the suburbs, sometimes picked up after flying into glass or following misadventures with cats. Perches quite freely on power-line and sometimes buildings. Two other small kingfishers also occur in the suburbs or on the fringes:

The Red-backed [*Halcyon pyrrhopygia*] is mainly a dry season visitor and the forest [*H. macleayi*] seems to prefer Melaleuca (paperbark) swamps.

Rainbowbird [*Merops ornatus*] One of the most attractive birds of the Darwin suburbs, most common during the dry season. Has adapted to living alongside man, using power-lines as vantage-points from which to sally after flying insects, especially the dragonflies that are common early in the dry season. Sometimes roosts communally in the suburbs, for instance, Rapid Creek in 1976-7 or can be seen flying over to roost in the early evening.

Dollarbird [*Eurystomus orientalis*] Conspicuous bird, visiting suburban fringes during the wet season. Using power-lines as "bases" for display-flights and feeding sallies.

Tree Martin [*Cecropis nigricans*] The common member of the swallow family [*Hirundinidae*] in the Darwin area, especially near water, but scarce during the wettest months when it possibly moves out to breed. Large flocks occur around the Sanderson sewage ponds and birds are frequently seen hawking over the suburbs.

Richard's Pipit [*Anthus novaeseelandiae*] An occasional visitor to grassy areas on the fringes of the suburbs such as Casuarina Drive in Rapid Creek.

Black-faced Cuckoo-shrike [*Coracina novaehollandiae*] This species, one of the most widespread in Australia is apparently mainly a dry season visitor to

Darwin. However, at this season it is very common in the suburbs, often perching on power-lines or even clothes-hoists. Immatures lack the full black face and throat patch and can be confused with the next species.

White-bellied Cuckoo-shrike [*Coracina papuensis*] A resident species but generally less obtrusive than the previous. Favours well-wooded suburbs; it is uncertain whether it still breeds regularly in Darwin but in 1977 it attempted to breed in Nightcliff (C. Peterson, pers. comm.) and successfully bred in the city alongside the MLC Building (D. Jacobs, pers. comm.) Breeding may generally be earlier than the December and January suggested by Storr. The MLC birds had young fledged in November. Plumages are whiter on the underparts than *C. novaehollandiae* and favours some habitats, such as rain-forest, that the other usually avoids. Although the two species may occur close together, they apparently do not mix.

White-winged Triller [*Lalage sueurii*] Quite common as a dry-season visitor when the nondescript female or non-breeding males visit suburban gardens and a variety of woodland habitats including mangroves. Recently, in 1976 and 1977, males have been frequently seen in breeding plumage and heard in full song in several suburbs and in the city itself. There was a breeding attempt in mangroves at Nightcliff in November 1977. It seems that this may



Torresian Crow

be a local change in status for a species which is common in the arid and semi-arid areas of the Territory.

Varied Triller [*Lalage leucomela*] A common resident, sometimes visiting well-wooded suburbs, especially during caterpillar plagues. Otherwise it is a fairly retiring although noisy species, most often found in mangroves or monsoon forest. Could be confused with previous species which is never barred on the underparts, lacks the buff on the under tail coverts and has different calls (refer Slater 1974 for description). Both species sometimes occur together; Varied does not have the brown nondescript plumage of the female or non-breeding male White-winged.

Green-backed Warbler [*Gerygone chloronota*] A small, inconspicuous, resident species common in monsoon-forest on the fringes of Darwin, especially in the Fannie Bay area.

Golden-headed Cisticola [*Cisticola exilis*] A common but rarely seen bird frequenting patches of undergrowth and rough grass, for instance, around Salomika, Fannie Bay and parts of Nightcliff. At the beginning of its breeding season during the humid build-up to the wet season in November-December it perches prominently and calls frequently.

Helmeted (Mangroves, Melville Is.) Friarbird [*Philemon buceroides*] Of the two Friarbird species in Darwin, this is mainly found in monsoon-forest or mangroves but is quite a common visitor to gardens adjoining these habitats in Nightcliff, Rapid Creek and Fannie Bay. The difficulties of distinguishing this species from the next are overstated; it lacks the conspicuous "hump" at the base of the bill and the white feathers on the head which characterize *P. argenticeps*. The underparts are browner and with practice, many of the calls can be separated.

Silver-crowned Friarbird [*Philemon argenticeps*] Quite common, but usually avoiding monsoon-forest and mangroves. Freely visits suburban gardens to feed on nectar-bearing flowers and breeds on the outskirts of the built-up area. Habitat overlaps somewhat with the previous species but Helmeted is unusual in the open eucalypt forest which is the principal habitat of this species.

Blue-faced Honeyeater [*Entomyzon cyanotis*] A large honeyeater which prefers open eucalypt woodland where it breeds, generally avoiding the monsoon forest remnants of Nightcliff and Fannie Bay and mangroves. Visits gardens to feed on banana flowers. Has a penetrating single whistle, an early morning call often heard in the dry season.

White-gaped Honeyeater [*Lichenostomus unicolor*] A common species but one which avoids open eucalypt woodland. As a suburban bird favours the more established gardens but freely uses exotic trees, such as poincianas and mangoes. It is also quite common in the city area where suitable trees are available but is largely absent from the newer northern suburbs.

White-throated Honeyeater [*Melithreptus albogularis*] Prior to cyclone Tracy, a common species in eucalypt woodland and its vestiges around Darwin but wind damage to its habitat and interference with re-growth from badly controlled or accidental burning has reduced it considerably, although it remains common outside the area of the most damage. It is now scarce in the Lee Point Rd. area, adjoining the Wanguri and Wulagi subdivisions where it was common formerly but still occurs in eucalypts in Nightcliff and elsewhere.

Brown Honeyeater [*Lichmera indistincta*] Common, but mainly on the fringes of the built-up area, favouring mangroves, but also visiting suburban gardens. Breeds in the dry season and is very quiet and unobtrusive at other times.

Rufous-banded Honeyeater [*Canopophila albobularis*] One of the commonest small birds in the Darwin area, apparently a mangrove species and very common in this habitat where competition with the Brown Honeyeater seems to be minimised; Rufous-Banded breeds mainly in the wet season and is relatively unobtrusive during the dry. It is a frequent visitor to suburban gardens and is quite common even in the city itself; its song can often be heard in Smith and Mitchell streets.

Red-headed Honeyeater [*Myzomela erythrocephala*] Mainly a mangrove species which sometimes visits nearby suburban gardens with suitable cover, for example, in Stuart Park and Fannie Bay.

Mistletoebird [*Dicaeum hirundinaceum*] Formerly quite common but much scarcer since Cyclone Tracy, possibly because of the destruction of its main food-source, the native mistletoes which are semi-parasitic on large trees.

Striated (Black-headed) Pardalote [*Pardalotus striatus*] A common dry season visitor and breeding species with a monotonous disyllabic call heard throughout the day, even in the heat of the afternoon when other birds are silent. Generally shuns rain and monsoon-forest, mangroves and prefers open eucalypt woodland. Nests in burrows in the ground, in dry creek-beds, deep wheel ruts, piles of top-soil dumped in gardens or heaps of builder's sand.

Yellow White-eye [*Zosterops lutea*] A mangrove species that sometimes wanders into adjoining suburban areas, for example at Stuart Park or Nightcliff.

Double-barred Finch [*Poephila bichenovii*] Fairly common in some areas, for example Parap and Fannie Bay and perhaps Ludmilla and Nightcliff but absent elsewhere. Status uncertain; may breed regularly.

Chestnut-breasted Mannikin [*Lonchura castaneothorax*] Occurs in wastelands, areas cleared but with some regrowth, cyclone-damaged or otherwise degraded scrub, near the suburbs and roosts in some numbers just east of Darwin but status uncertain and apparently no definite breeding records.

Yellow-rumped Mannikin [*Lonchura flaviprymna*] This species is in an obscure taxonomic position but is clearly related to the previous and sometimes occurs in small numbers in flocks of Chestnut-breasted.

Yellow Oriole [*Oriolus flavocinctus*] Primarily a bird of the mangroves and coastal monsoon-forest, relatively common in suburban areas adjoining these habitats, as in Nightcliff, Rapid Creek and Fannie Bay.

Olive-backed Oriole [*Oriolus sagittatus*] An erratic visitor to Darwin, mainly in dry season. Occasionally seen in gardens but care is needed to separate from the female of the much commoner Yellow Figbird.

Yellow Figbird [*Sphecotheres viridis*] Common; especially conspicuous and noisy from September onwards, at the beginning of its breeding season. Occurs in all suitable suburbs with adequate cover and breeds even in the city itself. Can be heard calling close to the Smith-Knuckey intersection or in Bennett Street near the Reserve Bank. The brightly coloured male is distinctive but the female could be confused with the Olive-backed Oriole which is slimmer, has a more slender bill and lacks the area of pink skin around the eye.

Spangled Drongo [*Dicrurus hottentottus*] Mainly a monsoon forest and mangrove bird that overfills into adjoining suburbs.

Great Bowerbird [*Chlamydera nuchalis*] Not uncommon in the Darwin area but is generally a bird of the suburban fringes, whereas in Batchelor it is common in gardens and occurs freely around road-houses on the Stuart Highway. Uses flip-tops from cans in the decoration of its bower. There are no confirmed breeding records but 'active' bowers

have been found near Holmes Jungle and Nakara in 1974. Present status uncertain.

Australian Magpie Lark (Mudlark Pee-wee) [*Grallina cyanoleuca*] A conspicuous dry season visitor and one of Australia's most widespread and familiar species. Apparently does not breed in the coastal Darwin area.

White-breasted Woodswallow [*Artamus leucorhynchus*] A common dry season visitor, often seen in small flocks on power-lines. Absent during its wet season breeding period when it seems to move eastwards into Arnhem Land.

Grey (Silver-backed) Butcherbird [*Cracticus torquatus*] Present in eucalypt woodland in the Lee Point Road area. Refer next species.

Pied Butcherbird [*Cracticus nigrogularis*] This species has probably suffered with the previous species from cyclone damage to its preferred habitat of eucalypt woodland and from the encroachment of the suburbs but it is still common just outside Darwin. Has bred in the Wanguri area (1974) and probably still does; occurs close to the new subdivisions at Wulagi and Anula. Avoids monsoon forest, mangroves and completely open habitats without trees.

Torresian Crow [*Corvus orru*] An occasional visitor to the area, especially in the dry season although it breeds in the Humpty Doo area. The comparative scarcity in Darwin is surprising as the author has seen it scavenging on the town dump at Gove and this is apparently common behaviour. (K. Grant, pers. comm.). (The two main species at Leanyer dump are Pied Heron [*Ardea picata*] and Black Kite.)

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NOTES ON THE HABITS OF THE NORTHERN JEZABEL BUTTERFLY

Delias argenthona fragalactea

by Alan Wade

Abstract

The larvae of the north-western subspecies of the Northern Jezabel *Delias argenthona fragalactea* (Butler, 1869) feed on the mistletoe *Decasohna signata*. This mistletoe is parasitic on the Northern Milkwood *Alstonia actinophylla*. During the late wet season (March - May 1977) adults of both sexes of the Northern Jezabel were seen feeding on the nectar of the flowers of the Darwin Stringybark *Eucalyptus tetradonta*, but not on the flowers of the mistletoe. However, the mistletoe flowers were a nectar source during the dry season when there were few other flowers.

Introduction

Larvae of the *Delias* butterfly genus feed almost exclusively on parasitic plants, including the mistletoes. The larvae of the Australian east-coast subspecies of the Northern Jezabel *Delias argenthona argenthona* are known to feed on several species of mistletoe including *Muellerina celastroides* and *Anyema bifurcatum* (Common and Waterhouse, 1972). *A. bifurcatum* occurs in the Northern Territory (Harmer, 1976) and *D. argenthona fragalactea* may well feed on this mistletoe species.

Discussion

The study was made on the Esplanade Reserve in the Darwin town area. Adults of the Northern Jezabel were first observed in gardens along the Esplanade and were subsequently seen in the canopies of some thirty Northern Milkwoods *Alstonia actinophylla* which were located on the Reserve. The butterflies were also observed in the canopy of a large solitary Darwin Stringybark *Eucalyptus tetradonta* where they were more common than elsewhere. At the time of these observations in March 1977, the eucalypt was in full flower and there were usually from two to four individuals on the wing or feeding from flowers at any one time. From observations made over a period of several weeks, I concluded that there were usually more individuals, up to eight or ten, active in the eucalypt canopy around dusk than at any other time of the day. Similar habits were observed with the adult male Wood White butterflies *Delias aganippe* feeding from mistletoe flowers at Kambah in the Australian Capital Territory at dusk in February 1977. While there are some notable exceptions, most butterflies settle at least an hour before sunset.

The association of the butterfly with the canopy of the milkwoods was almost certainly because of the presence of the mistletoe *Decasohna signata* in 90% of all milkwood trees on the Reserve. The Northern Jezabel lays yellow eggs in clusters on the undersides of young mistletoe leaves. In each of the three separate colonies I studied during April 1977, there were nineteen or more one or two day old larvae and up to sixty eggs. Yet natural survival is low. In the colony of nineteen young larvae, I observed the number surviving after two or three days to be about one half of the number seen at last count. Within a fortnight no larvae could be seen. The larvae have a gregarious feeding habit and availability of very young shoots on a single branch appears to be the critical factor in determining the survival of larvae. Attempts to rear larvae seem to support this. While nearly all eggs hatched, larvae survived only on young mistletoe and were reluctant to move onto fresh mistletoe supplied daily. Only two of the original larvae, totalling about one hundred individuals, survived to pupate after approximately twenty-eight days. In a new finding (18 February 1978), twenty two to three day old larvae, were found feeding on young tips of mistletoe on which larvae had been found feeding in early March 1977. Four days later there were only eight surviving larvae, and within eight days, no larvae could be seen.

The eastern subspecies of the Northern Jezabel is on the wing throughout the year (McCubbin 1971). The north-western subspecies was common in late September, but by late December, no individuals could be sighted on the wing. Whereas during the wet season the Northern Jezabel was rarely seen near mistletoe flowers, by September they were freely feeding at the conspicuous red flowers. The mistletoe flowers throughout the wet season and almost until the end of the dry season. Lack of suitable flowers towards the end of the dry season may be a factor in limiting numbers of adults.

The life cycle of the Northern Jezabel appears to be confined almost entirely to the canopies of trees. Other members of the genus favour hilly areas. The close proximity of a small escarpment and the ready availability of food appears to make the reserve a suitable habitat for the Northern Jezabel.



a) (x3)



b) (x1-5)

Delias argenthona fragalactea

- a) Mature larva
- b) Adult

Line drawing courtesy of W. Loh Choy

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THE REEF DWELLING FISHES OF THE DARWIN AREA

K. Martin

INTRODUCTION:

Many Darwin people spend their leisure time fishing, snorkelling or reef fossicking, and invariably have at one stage seen or caught a fish that they cannot identify. Unfortunately, most of the classic literature pertaining to this area is difficult to obtain, and even then, some of the more common species are not listed. In fact, very little study has been carried out on the reef fish of this area, and there is every likelihood of a casual observer finding a rare or undescribed species.

Obviously, in an article such as this, it is impossible to present a comprehensive guide to our fish fauna. Instead, it is my endeavour to present a general discussion of the environment in which these animals live, how to observe them, and a resume of the various families. Included is a checklist of those species which I have recorded in this area.

THE REGION:

Darwin lies fairly centrally on the southern edge of a large oceanographic zone known as the Indo-Pacific Region. This region is a vast area which extends from Eastern Africa, through the tropical Indian Ocean, South East Asia, and the Western Pacific, where it extends south to Lord Howe Island, east to Gambier Island, and north to Hawaii. Many Barrier Reef species occur in Darwin, and the majority of Darwin fish extend down the tropical west coast of Australia. Some species are distributed throughout the Indo-Pacific, while several are found only in the Northern Territory.

THE HABITAT:

Due to extremes in tidal variation, the proximity of large rivers and estuaries and the monsoonal effect, waters around Darwin are generally fairly turbid. Visibility is at best about seven metres, at worst - zero, but in sheltered areas, is usually about four metres during the dry season.

The main coral reefs of Darwin occur in protected areas near headlands, such as those at East Point, Lee Point, and Gunn Point. Coral filled lagoons occur in rocky areas such as Nightcliff, and Lee Point, where the low tides provide clear, still waters. Many areas of coral are completely exposed on tides of less than 1.5 metres, and in this case, fish either vacate the reef, or shelter in shallow pools. Large amounts of weed bloom over the reefs towards the end of the wet season, and it is at this time that many species breed (although some species will breed all year round).

The coral reef is regarded as a very stable environment. Consequently, reef-dwelling fish are extremely specialised and adapted to conditions which remain virtually unchanged throughout the year. Waters of the coral reef are almost always calm and fairly clear, and have a small temperature range. They have a high salinity and oxygen content, and maintain a PH value of about eight.

In shore reefs such as those in the vicinity of Darwin are occasionally muddy and turbulent, and therefore support a less diverse fish population. In contrast, the vast coral reefs of the Vernon Islands, about eighty kilometres to the north-east of Darwin, support a number of species which are not found along the coast.

OBSERVING AND COLLECTING SPECIMENS:

Due to the very nature of their environment, collecting specimens of reef fish is a difficult task. Netting a coral reef is comparatively futile and most collecting for research material is done with the aid of a drug, Rotenone, which quickly kills any fish coming in contact with it. Fish can be fairly safely collected with the aid of an anaesthetic, such as Quinaldine or MS222, but these drugs are very expensive, and must be used cautiously. Some tropical fish importers even use Cyanide to obtain specimens, a practice which is fortunately gaining worldwide disapproval.

Obviously, the best way to observe fish in their natural environment is to get in there with them. Snorkelling or skindiving in a coral reef is a fascinating pastime. Pick a low neap tide during the dry season, when the reef is submerged to a depth of about two or three metres, and the visibility will be fairly good. To actually catch fish in this situation, with nets or a slurp gun, will at first seem very difficult, but a little practice yields results.

Wandering out upon the coral on a very low tide is also a good way to find fish. If you go out during the low night tide, you will be greatly rewarded, as the resting fish are seen hiding under overhangs or just drilling about, are quite easily caught.

Great care should be taken when walking on the reef, as some corals are very brittle, and easily damaged. Strong shoes should be worn, as many corals can give a painful sting, not to mention the possibility of treading on a Stonefish.

Finally, collectors should remember that corals take a long time to grow, regenerating very slowly if damaged. Indiscriminate collecting of species such as Clownfish and their anemones will destroy the reef. Future generations should be able to observe these fascinating communities as they exist at present.

MAJOR FAMILIES OCCURRING AROUND DARWIN

The following is a description of some of the larger or more common families of reef-dwelling fish which are likely to be encountered in the vicinity of Darwin.

ORECTOLOBIDAE (Reef Sharks)

The Reef Sharks are recognised by their bottom dwelling habits, and unlike the larger pelagic sharks, they do not need to swim constantly in order to breathe. They are small and nocturnal, but may be encountered during the day, hiding under rocks and overhangs.

PLOTOSIDAE (Eel Tailed Catfish)

A group of nocturnal reef scavengers which possess four pairs of fleshy barbels on the snout. They are scaleless, and are endowed with sharp dorsal and pectoral spines which can inflict a painful wound.

MURAENIDAE (Moray Eels)

Medium to large predatory fish, they generally live in holes and under coral colonies. Although not poisonous, their strong jaws and savage disposition should be respected.

APOGONIDAE (Cardinalfish)

A large group of nocturnal fish, many are brightly coloured. They are often seen in large shoals milling around stands of Staghorn [*Acropora*] coral. They are characterised by their large and often bright blue eyes, and a tendency to hover motionless in the water.

SERRANIDAE (Rock Cod)

A large family of secretive predatory fish. They have unmistakably large mouths, and the corresponding appetite makes them easy prey for the reef fishermen.

LUTJANIDAE (Snapper, Sea Perch)

A large and common group of active, carnivorous fish, which may occur in big schools on coral reefs. Most are of a streamlined appearance, often coloured with lateral stripes and a black blotch on the side.

MULLINDAE (Goatfish)

A group of bottom dwelling fish recognised by a pair of fleshy barbels projecting from under the chin.

MONODACTYLIDAE (Moonfish)

A group well-known in the fishing fraternity, the Moonfish or Silver Batfish, is a laterally compressed fish bearing a superficial resemblance to the true

Batfish [*Ephippidae*]. The juveniles inhabit brackish water and are often sold as freshwater aquarium exhibits.

EPHIPPIDAE (Batfish)

Large, laterally compressed fish with extended dorsal and pelvic fins. Because of great variations between individuals from different areas, and the change of shape from juvenile to adult, this family has presented many problems for taxonomists.

CHAETODONTIDAE...

Subfamily *CHAETODONTINAE* (Butterflyfish)

This is a very large and colourful family of small, laterally compressed fish, which feed almost wholly on coral polyps. These are the typical fish that most people identify with tropical coral reefs. Their delicate colours and appearance make them attractive aquarium fish, but they are not recommended for the beginner. At least six species occur in the Darwin area, although two of these [*Chaetodon adiergastos* and *Heniochis acuminatus*] can be regarded as very rare.

Subfamily *POMACANTHINAE* (Marine Angelfish)

This group is distinguished from the previous subfamily by the strong spine which projects from below the gills. As well, they generally attain a larger size. They are amongst the world's most colourful and graceful animals, and are much sought after by marine aquarists. Probably only two species occur in Darwin, the commonest being the Scribbled Angelfish [*Shaetodontophus duboukyi*] undoubtedly the most colourful fish to be encountered in these waters.

POMACENTRIDAE...

Subfamily *AMPHIPRIONINAE* (Clownfish)

The Clownfish are a brightly coloured group which are found in association with sea anemones. The mucus covering on their skin gives them immunity from the anemone's deadly stinging tentacles, and the fish use the protection of the anemone to survive, as they are a slow swimming and fairly defenceless group. In the wild, the three species which are found in Darwin, all inhabit different anemone species, although in captivity, they will readily swap anemones, or even live quite happily without them. It is worth mentioning that the spectacular black and white colour form of *Amphiprion ocellaris* is strictly confined to North Western Australia, particularly the Darwin area.

Subfamily *POMACENTRINAE* (Damselfish)

A very large group of small, brightly coloured fish which are thought to be close relatives of the freshwater *Cichlids*. They are extremely territorial, and are one of the commonest of our reef fish. They are active and alert, and the colourful juveniles are a prolific sight in the rockpools around our coastline.

LABRIDAE (Wrasses, Tuskfish)

The Wrasses and Tuskfish are a large family but one which is poorly represented in Darwin. I have encountered only one species of wrasse here [*Halichoeres nigrescens*], which is abundant in this area. It is basically green in colour and burrows in the sand at night, or when disturbed. Tuskfish of the genus *Choerodon* have presented many problems for the taxonomist, so the classification of at least one Darwin species is doubtful. These fish are generally known as "Parrotfish" by fishermen, due to their colourful appearance and mouth structure, but in fact, the true Parrotfish [*Scaridae* family] are essentially coral feeders, and not very common in this area. Due to their specialised feeding habits, it is unlikely that many hook and line fishermen have ever landed a true "Parrot".

GOBIIDAE (Gobies)

This and other related families, such as the Blennies and Gudgeons, are small, carnivorous fish which generally inhabit shallow water and coastal tide-pools. They are bottom dwellers, and include some of the world's smallest vertebrates.

SIGANIDAE (Rabbitfish, Spinefeet)

Medium sized herbivorous fish found in weedy areas and often around stands of coral. The juveniles may be found in brackish areas such as around mangroves.

ACANTHURIDAE (Surgeonfish)

A family poorly represented in Darwin by a single species. They are coral and algae feeders, and can be

distinguished by the retractible knife-like weapon which they sport on either side of the tail base.

SCORPAENIDAE (Scorpionfish, Lionfish)

The Darwin area supports a large variety of fish from this family. They are a bizarre looking group, containing such creatures as the Butterfly Cod (Lionfish), several small and colourful species of Scorpionfish, and of course, the Stonefish, all of which may be encountered in the Darwin area. All possess poisonous dorsal spines capable of inflicting painful wounds, or causing death, to humans.

BALISTIDAE (Leatherjackets, Triggerfish)

Slow swimming, herbivorous fish, having a single dorsal spine and no ventral fins, the Leatherjackets generally frequent weedy areas. The sub-family *Balistinae* (Triggerfish) are noticeably absent from Darwin waters.

OSTRACIIDAE (Boxfish)

Small, curious looking fish which are awkward swimmers, and as the name implies, have a box-shaped body. The scales are formed into bony plates which cover the body.

ANTENNARIIDAE (Anglerfish)

Darwin supports a variety of these strange fish. They are generally found sitting motionless on the bottom of tidal pools, waiting patiently for some small animal to be attracted by the "fishing pole" projecting from the top of their head.



Chetodon aureofasciatus — Golden Striped Butterflyfish

PRELIMINARY CHECKLIST:

SCIENTIFIC NAME

Orectolobus wardi
Hemiscyllium ocellatum
Hemiscyllium trispeculare
Stegostoma fasciatum
Rhinobatos batillum
Carcharhinus spallanzani
Himantura aarnak
Dasyatis kahlii
Plotosus anguillaris
Paraplotosus albilabris
Netama thalassina
*Gymnothorax sp. **
*Lycodontis pictus **
Hemiramphus quoyi
Hyporhamphus sp.
Holocentrus ruber.
Yozia bicoarctata
Liza dussumieri
Liza vaigiensis
Absalom radiatus
Apogon cooki
Apogon opercularis
*Archamia melasma **
Plectropoma maculatum
Epinephelus tauvina
Epinephelus gilberti
Cephalopholis pachycentron
Cromileptes altivelis
Disophrion bifasciatum
Pseudochromis wilsoni
Pseudochromis punctatus
Gnathypops darwiniensis
Halophtyrus diemensis
Lutjanus russelli
Lutjanus johni
Lutjanus argentimaculatus
Lutjanus carponotatus
Lutjanus sebae
Caesio cuning
Scolopsis nicanor
*Nemipterus sp. **
Plectorhynchus pictus
Therapon jarbua
Amphiterapon caudavittatus
Upeneus tragula
Malloichthys auriflamma
Monodactylus argenteus
*Platax pinnatus **
Platax batavianus
Drepane punctata
Selenotoca multifasciata
Chelmon marginalis
Chelmon macleeri
Heniochus acuminatus
Parachaetodon ocellatus
Chaetodon aureofasciatus
Chaetodon adiergastos
Chaetodontoplus duboulayi
Euxiphipops sexstriatus
Amphiprion rubrocinctus
Amphiprion ocellaris

COMMON NAME

Northern Wobbegong Shark
 Epulette Shark
 Spotted Catshark
 Leopard Shark
 Shovel Nosed Shark
 Black Tipped Shark
 Coachwhip Ray
 Blue Spotted Stingray
 Striped Catfish
 Common Catfish
 Salmon Catfish
 Green Moray Eel
 Speckled Reef Eel
 Short Nosed Garfish
 Sea Garfish (several species)
 Red Squirrelfish
 Pipefish
 Mullet
 Diamond Scaled Mullet
 Fringe Finned Trevally
 Red Cardinalfish
 Cardinalfish
 Cardinalfish
 Coral Trout
 Estuary Rock Cod
 Wire Netting Cod
 Banded Rock Cod
 Leopard Cod
 Yellow Emperor
 Yellow Finned Dottyback
 Long Finned Dottyback ('Marine Siamesefighter')
 Roundhead
 Frogfish
 Moses Perch
 Sea Perch
 Mangrove Jack
 Spanish Flag
 Red Emperor
 Yellow Tailed Fusilier
 Monocle Bream (several species)
 Painted Sweetlips
 Crescent Perch
 Bar Tailed Perch
 Bar Tailed Goatfish
 Red Goatfish
 Moonfish
 Long Finned Batfish
 Hump Headed Batfish
 Short Finned Batfish
 Sickfish
 Silver Scat
 Long Nosed Butterflyfish
 Chocolate Butterflyfish
 Pennant Butterflyfish
 Six Spined Butterflyfish
 Golden Striped Butterflyfish
 Butterflyfish
 Scribbled Angelfish
 Six Banded Angelfish
 Red Clownfish
 Black and White Clownfish



The following is a list of reef-dwelling fish which I have observed or collected in the Darwin area; (for our purposes, I have taken the definition of "Darwin area" as being that stretch of coastline which lies roughly between Gunn Point and Bynoe Harbour). Species marked with an asterisk should be regarded as tentative identifications only, due to either insufficient data and specimens, or taxonomic uncertainty. It is likely that many other species occur in this area.

SCIENTIFIC NAME

COMMON NAME

<i>Ampliprion clarkii</i> *	Yellow Faced Clownfish
<i>Pomacentrus littoralis</i>	Blue Damselfish
<i>Pomacentrus milleri</i>	Beau Gregory
<i>Pomacentrus amboinensis</i> *	Yellow Damselfish
<i>Dischistodus fasciatus</i>	Bumble Bee Damselfish
<i>Abudefduf palmeri</i>	Seven Banded Damselfish
<i>Abudefduf melanopus</i>	Black Footed Damselfish
<i>Choerodon schoenleini</i>	Black Spot Tuskfish
<i>Choerodon albigena</i> *	Blue Tuskfish
<i>Halichoeres nigrescens</i>	Green Sand Wrasse
<i>Scaurus fasciatus</i> *	Parrotfish
<i>Istiblennium edentulus</i>	Blennie
<i>Siganus virgatus</i>	Rabbit Faced Spinefoot
<i>Siganus vermiculatus</i>	Scribbled Spinefoot
<i>Acanthurus xanthopterus</i>	Ring Tailed Surgeonfish
<i>Ctenogobius criniger</i>	Hair Finned Gobie
<i>Eleotriodes murulis</i>	Lined Gudgeon
<i>Platycephalus indicus</i>	Flathead
<i>Pterois volitans</i>	Lionfish
<i>Dendrochirus zebra</i>	Dwarf Lionfish
<i>Synanceja trachynis</i>	Stonelfish
<i>Scorpaenopsis gibbosa</i>	False Stonelfish
<i>Scorpaena bynoensis</i>	Scorpionfish
<i>Tricantlus biaculeatus</i>	Tripodfish
<i>Monocantlus chinensis</i>	Fan Bellied Leatherjacket
<i>Ostracion tuberculatum</i>	Boxfish
<i>Diodon hystrix</i>	Porcupinefish
<i>Chelonodon patoca</i>	Marbled Toadfish
<i>Antennarius sp.</i>	Anglerfish (several species)

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In preparing this Checklist, I have generally adopted the scientific nomenclature used in Munro's "Fish of New Guinea" where possible, and have tried to utilize local common names of the more well-known species. I would be grateful to hear from anyone who may be able to expand on or otherwise modify this checklist. If you have any information or specimens, please contact me through the N.T.F.N.C.

FORMATION OF A FIELD NATURALISTS CLUB IN ALICE SPRINGS

On the 19 December, 1977, a well attended meeting in Alice Springs set about forming an Alice Springs Field Naturalists Club. Membership fees have been set at \$5 for the first six months of 1978 and will be reviewed shortly. Office bearers of the Club, elected at its second meeting are:

President: Mike Fisher
Vice President: Doug Meek
Secretary: Andrew Mitchell
Treasurer: Lesley Sealey
Liaison Officer: Jeff Godden

The Club is producing a newsletter to keep members informed of its activities and welcomes contributions from interested people: In addition, members from Alice Springs are encouraged to contribute to the N.T. Naturalist in order that it has more appeal throughout the Territory. There is strong feeling that the Club form a junior section and Jeff Godden is contacting all Alice Springs schools to ascertain support for such a move. The Club also hopes to join with the Society for Growing Australian Plants in running a stall at the Alice Springs Show later this year. Already several successful field trips have been organized, and more are planned for the rest of the year.

The address of the Club is P.O. Box 2483, Alice Springs, 5750. Meetings are held on the first Monday of each month and further information can be obtained by ringing Andrew Mitchell on Alice Springs 52 2344.

All N.T. Naturalists join in wishing the Alice Springs Field Naturalists Club every success in the future.

THE NORTHERN TERRITORY NATURALIST

Advice to Contributors:

The N.T. NATURALIST is published bi-annually. Contributors need not be members of the N.T.F.N.C. although all members are urged to contribute. Contributions may take one of the following forms:

1. Letter to the Editor

A letter should be a short comment on a previous publication in the N.T. NATURALIST, a comment on an issue of topical interest in natural history, or a brief report of a field trip. Letters may be handwritten provided they are well presented. Only one copy of a letter is required.

2. Notes

If you have made a series of observations (for example, on the behaviour of a bird or other animal) or have noted something new or unusual in the field, then this is the place to report your findings. Contributions should be in the order of 200 - 500 words and provided with a title.

3. Articles

An article should run to a maximum of about 1500 words (four to five double-spaced typed, A4 pages) and deal with a topic in the natural sciences. It should be written in a manner intelligible to readers without a specialist knowledge of the subject. Articles should be appropriately illustrated by clear, black ink graphs, drawings, diagrams or photographs.

4. Research Papers

Longer research papers will be considered. A paper should be an original scientific communication and be fully referenced.

5. Special Contributions

Feature articles, cover designs, photographs suitable for publication, drawings and reports on field trips are welcome. Contact the editor if you have any innovative ideas.

GENERAL

Manuscripts must be submitted in duplicate, typed on one side of the page only, double-spaced with a forty millimetre margin. The Editor will be pleased to give intending authors further guidance on the preparation of manuscripts.

journal of northern territory field naturalists club

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Cover Design: Susanne Avery

Cover Photograph: Sea Wasp *Chironex fleckeri* — D. L. Grey

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